

## Field Report - 1993 GLACIER SNOWLINE SURVEY

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The glacier snowline elevation survey was carried out in light aircraft flights over the two days of Monday and Tuesday 15 and 16 February, 1993. After the unusually long periods of bad weather during March 1992 which delayed the survey until early winter snow had fallen, this year it was decided to commence the count-down to the "last perfect day before the first snow of winter" earlier from the beginning of February. The first two weeks of the month were characterised by storms over the mountains before the first anticyclone of the year formed over the country, and the opportunity was taken to fly in this period of settled weather. Only two of the index glaciers had any cloud cover, one in the Whataroa and one in the Arawata.

A scan of local aircraft companies showed that Aspiring Air, located at Wanaka, offered the most suitable base location, aircraft and experience to make an efficient survey. In addition, a contact was available through one of the pilots who used to work on Ministry of Works glacier snow surveys. A Cessna 172 aircraft, ELB, was used on the northern section, and a more suitable Cessna 177 (DOA with no wing-struts) was used for the southern section.

All glaciers were photographed from 10,00 ft through closed windows. This has been found to be the most suitable height for this type of survey. The northern section was flown first as weather forecasts rumoured that a front was to brush southern Fiordland on the Monday, by covering the index glaciers to the east of the Main Divide on the way north as far as Arthurs Pass, and those to the west on the return south. On the second day, the transect from the Shotover to Milford sound was covered and then for the first time, a complete coverage of the Fiordland glaciers was achieved. Time and weather both combined favourably to allow the flight to be extended to include Hump Ridge and Solander Island, of the mapsheet currently being worked on by Turnbull. Monday's flight north of Hawea took 5.1 hr in ELB, and a further 1.4 hr in DAO to do the Matukituki - Arawata section. The next day the remaining Fiordland section was covered in 3.6 hr in DAO, giving a total of 10.1 hrs for the complete survey at approximately \$250 per hour.

Initial results show that for the second consecutive year, all glaciers have extensive snow cover and low snowlines indicating strongly positive balances. The balances of these past two years will ensure that the current readvance of the Franz and Fox Glaciers will continue. No attempt was made to extend the flight northward to pick up the glaciers in the Nelson Lakes district because of the excessive snow cover. Although two index glaciers are located here, a visit to this area would be primarily to add data on glacier outlines to the NZ glacier inventory, and this is only accurate in years of strong negative balance when the glacier boundaries are at a minimum and are not obscured and extended by 'temporary' snow. However to the south, where the positive balances were less pronounced, most of those glaciers for which we have no inventory photographs were systematically hunted down and recorded.

This has been the first time since surveys commenced in 1977 that a full record of all transects of the index glaciers has been achieved. This leaves two in Nelson Lakes, one on the Kaikouras and those of Mt. Ruapehu not recorded. To include these would have meant an overnight stay in Christchurch for the team and aircraft which would have stressed the duration of fine weather and considerably increased the costs. But I do believe that a survey of Ruapehu should be attempted from a North Island base because of the importance of its extreme northerly position. Perhaps Mauri McSaveney could run a flight from Wellington. With Ruapehu data, the Nelson Lakes glaciers are possibly only worth visiting on an opportunistic basis, eg. if an aircraft is flying south from Wellington.